DOCUMENT RESUME

ED 112 963 JC 750 514

AUTHOR Hoffman, Elise
TITLE A Comparison of Team-Teaching and Audio-Taped Lectures with the Traditional Lecture Method.
PUB DATE 1 Dec 74
NOTE 45p.; Ed.D. Practicum, Nova University

EDRS PRICE MF-$0.76 HC-$1.95 Plus Postage
DESCRIPTORS Comparative Analysis; Failure Factors; *Junior Colleges; *Lecture; National Competency Tests; *Nursing; Questionnaires; State Standards; Student Certification; *Teaching Methods; *Team Teaching; Vocational Education
IDENTIFIERS Alvin Junior College

ABSTRACT

The high percentage of students failing State Board Examinations for licensure as registered nurses led to provisional accreditation being placed on the nursing program at Alvin Junior College (Texas). Teaching methodology was investigated as a possible contributor to these failures. A review of the related literature indicated that individualized, systematic teaching methods best facilitate the learning of medical-surgical nursing. A team-teaching method of instruction, supplemented with audio-taped lectures, was used in medical-surgical nursing classes in 1974 (77 students). Compared to classes the year before (73 students), when the traditional one-teacher lecture method was used, the experimental, team-teaching group scored significantly higher on the National League for Nursing tests for Medical-Surgical Nursing II. In addition, the proportion of students passing the State Board Examinations was significantly higher for the experimental group (94 percent) than for the control group (77 percent). As a residual finding, when a questionnaire was sent to all the graduates who had been in the experimental group, 83 percent of the respondents stated that they preferred the team-teaching approach. (NHM)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED112963

A COMPARISON OF TEAM-TEACHING AND AUDIO-TAPED LECTURES WITH THE TRADITIONAL LECTURE METHOD

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

by
Elise Hoffman, M. Ed.
Alvin Junior College

A RESEARCH REPORT PRESENTED TO NOVA UNIVERSITY
IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
DEGREE OF DOCTOR OF EDUCATION

NOVA UNIVERSITY
December 1, 1974

JC 750 514

TABLE OF CONTENTS

		PAGE
	TITLE PAGE	i
	TABLE OF CONTENTS	ii
	LIST OF TABLES	iii
I.	THE TITLE	1
II.	THE STATEMENT OF THE PROBLEM	1
III.	THE HYPOTHESES	1
IV.	BACKGROUND AND SIGNIFICANCE OF THE STUDY	2
	CHANGING CONCEPTS IN NURSING PROGRAMS	2
	CURRICULUM EXPERIMENTATION AND TEACHING INNOVATIONS	3
	CLINICAL NURSING	5
	STUDENT-INSTRUCTOR RATIO	7
	EMERGENCE OF THE NURSE EDUCATOR	8
	DISCUSSION METHOD OF TEACHING	9
	NURSING RESEARCH	10
	EDUCATIONAL BACKGROUNDS	14
	DYNAMICS INVOLVED IN THE ADVANCEMENT OF KNOWLEDGE	15
V.	DEFINITION OF TERMS	19
VI.	LIMITATIONS	22
VII.	BASIC ASSUMPTIONS	22
VIII.	PROCEDURES FOR COLLECTING DATA	23
IX.	PROCEDURES FOR TREATING DATA	24

X. DATA RESULTING FROM THE STUDY 27

XI. SIGNIFICANCE OF DATA 30

XII. CONCLUSIONS AND SIGNIFICANCE 30

RESIDUAL FINDINGS 31

XIII. FURTHER STUDIES AND RECOMMENDATIONS 32

XIV. BIBLIOGRAPHY 34

APPENDICES 36

A. RAW DATA FROM STATE BOARD EXAMINATIONS . . . 37

B. QUESTIONNAIRE 38

LIST OF TABLES

Table		Page
1.	1973 Examination Information	12
2.	Facts About Schools of Nursing	13
3.	Means, Standard Deviations, Numbers, df, and the Difference Between the Mean and the Calculated t	26
4.	The Percentages of Students Passing or Failing State Board Examinations From the Experimental and the Control Group	29

RESEARCH REPORT

I. THE TITLE

A COMPARISON OF TEAM-TEACHING AND AUDIO-TAPED LECTURES WITH THE TRADITIONAL LECTURE METHOD

II. THE STATEMENT OF THE PROBLEM

Are the mean test scores of students taught by the team-teaching and audio-taped lecture method significantly higher than the mean test scores of those taught by the one-teacher lecture method?

Nature of the problem. The percentage of students failing state board examinations for licensure as a registered nurse contributed to provisional accreditation being placed on the nursing program. Full accreditation was restored, but the number of failures was still considered excessive. Teaching methodology was investigated as a possible contributor to these failures.

III. THE HYPOTHESES

The following hypotheses were used in conducting this study:

1. The mean test scores on the standardized national league for Nursing (hereafter referred to as N.L.N.) tests will be significantly higher in the experimental group than in the control group.

2. The proportion of students passing the State Board Test Pool Examination will be significantly higher in the experimental group taught by the team-teaching method than in the control group taught by the traditional one-teacher lecture method.

IV. BACKGROUND AND SIGNIFICANCE OF THE STUDY

The review of related literature, from community colleges to hospitals, and from nursing educators in the field, supports the concept that teaching methodology is a major concern of schools of nursing throughout the world. At the Fourteenth Quadrennial Congress of the International Council of Nurses held in Montreal in 1969, some ten thousand nurses from eighty-five countries met to assess and strengthen their involvement in nursing. New directions for nursing education were the concerns of several afternoon speakers.[1]

CHANGING CONCEPTS IN NURSING PROGRAMS

With the demise or near demise of the three year diploma, hospital based school of nursing has come an ever increasing surge of two year community college

---

[1] A Journal report on the Fourteenth Quandrennial Congress of the International Council of Nurses, "The World of Nursing Meets in Montreal," American Journal of Nursing. 69: 1684-1699, August, 1969.

nursing programs. At the same time, the open door admission policies of these community colleges allows students to enter the nursing program with less qualifications than were previously required. This places the nursing educators in the position of having to prepare students to pass the state board licensure examination while also preparing them to become safe, efficient nurse practitioners. This has created a need for utilization of creative teaching in the emerging patterns of professional nursing education. The task of the teacher no longer centers upon telling or showing students what they should know or how they should do a task; rather, it becomes one of guiding the students through materials of a probelm-solving nature that have been prepared by the teacher or by experts in the field. The nurse has been freed from many of the traditional responsibilities within the hospital itself. This has come about as a result of innovations such as electronic diagnostic devices for monitoring patients' vital signs and through automation of preparation, handling, and disposing of equipment and supplies, as well as through computerized record systems.

CURRICULUM EXPERIMENTATION AND TEACHING INNOVATIONS

As this shift in responsibilities occurs, there develops an imperative need for learning new skills of

a technical nature along with the need for even greater depth of understanding of human behavior in order to continue to provide quality nursing care to patients. With such trends being evident within nursing education, there is a continuous flow of reports of curriculum experimentation to meet these needs. This includes planning and implementing teaching innovations that could considerably enhance the potential for fostering student-centered learning. Some of these innovations include team-teaching and the utilization of multi-media approaches, but those involved in the teaching must be more than mere "transmitters of knowledge." The creative teacher's purpose is to guide the students through the problem, assisting them to build and test their own hypotheses. Also, the creative teacher must be adept at fitting direct learning experiences into a skill-oriented approach to a patient-centered setting. According to Schweer, of greatest importance to creative teaching is the consistency with which clinical teachers or other teachers utilize their creative talents whether in a formal classroom setting or in a clinical setting.[2]

---

[2]Jean E. Schweer, Creative Teaching In Clinical Nursing, Second Edition, E. V. Mosby Company, Saint Louis, 1972, p. 44.

CLINICAL NURSING

Clinical teaching may be thought of as an extension of academic teaching. Many schools have begun using the post conference in the hospital setting as an extension of classroom theory. Formerly, post conferences were concerned mainly with patients and incidents encountered during the day, but with the advent of team-teaching, this no longer need be so. With clinical instructors actively participating in classroom instruction, it is but a short step to having these same instructors carry through with the classroom material during post conference in the hospital.

This approach is being utilized at Alvin Junior College. Classes in nursing theory at Alvin Junior College consist of approximately 150 students in each class; however, only ten or twelve of these students are under any one instructor in the hospital. This is considered the maximum that an instructor is capable of supervising at one time. The State Board of Nurse Examiners will not allow more than this and neither will the hospitals in which students practice. Having only this number of students gives the clinical instructor a greater opportunity to know her students individually and to help them with any problem they may have.

Sometimes it is found that a student will need to be redirected through the Learning Resource Center for review of audio-visuals or a self-paced module. Some adaptations of the self-paced study may need to be made in order to meet the requirements of the nursing program, but by having materials available for individual use, the student may listen to tapes of lectures or view audio-visual materials that he may have missed in class or did not understand. He may also review these materials as many times as he feels is necessary. This type of teaching may be described as action designed to enable an individual to learn, and this learning may represent the process of assimilating knowledge or developing skills for either academic or practical use.

The central purpose in clinical teaching, when formulated and made explicit by the instructor, becomes a point of reference that gives direction to her teaching. Wiedenbach states that when the instructor is a nurse, her central purpose in clinical teaching becomes teamed with her central purpose in nursing, and except in emergencies, is maintained in a dominant role. This is to say that the instructor is responsible for enabling the student to experience and cope with situations that are conducive to her growth and development as a practitioner of nursing, while at the same time, the instructor is

accountable both for what the student does in the clinical situation and for the results the student gets from her nursing action.[3]

STUDENT-INSTRUCTOR RATIO

Since the focus on learning in nursing education is concerned with the health of human beings, the instructor is faced with the problem of integrity. Another factor that concerns nursing instructors in the clinical setting is the student-instructor ratio. The number of students must be no more than the instructor is able to cope with in the clinical setting. The instructor must never overwhelm the patient by involving a number of students in the patient's care. Objectives for students cannot be met by fragmenting the patient's needs in order to involve more students. Furthermore, this practice leads to mechanistic teaching, and the patient is lost in a morass of activity.[4] If the instructor is to func-

---

[3]Ernestine Weidenbach, Meeting the Realities in Clinical Teaching, Springer Publishing Company, Inc., New York, 1969, p. 6.

[4]Ann Zeitz, et al. Associate Degree Nursing: A Guide to Program and Curriculum Development, Saint Louis, 1969, The C. V. Mosby Company.

tion effectively, she must recognize the relationship between her two professions; teaching and nursing. This calls for clarity about each of these roles and for setting priorities for their fulfillment. This does not represent conflict of interest; rather, it makes the nurse educator more confident, competent and comfortable in giving patient care and in instructing and directing the student that is new to the area of clinical nursing.

EMERGENCE OF THE NURSE EDUCATOR

When nursing education shifted from service-oriented training to education in institutions of higher learning, the nurse educator emerged.[5] It has become her responsibility to select the learning experiences that guide and influence the student. The instructor's presence in the clinical setting is founded on the need to continue the teaching begun in the classroom by an explanation of the relationship between principles and practice. According to Bridgman, in order to meet her responsibility for the selection of learning experiences for the students, the instructor needs sufficient time to present this aspect of instruction as thoroughly as possible.[6] Other nursing

---

[5]M. Kramer, "Does the Teacher Really Know Best?" Journal of Nursing Education, 6:3-11, January, 1967.

[6]M. Bridgman, Collegiate Education for Nursing, New York, 1953, Russell Sage Foundations.

educators, such as Lamberson, report that the person best qualified to select and continue the learning experience in the clinical setting is the instructor who is on the teaching team in the academic setting. The clinical setting places emphasis upon learning rather than teaching so that there is a greater responsibility on the part of the teacher for the continuing evaluation of each experience.[7]

DISCUSSION METHOD OF TEACHING

Those who support the discussion method of teaching are guided by a point of view that includes many interrelated features. The first of these involves the position that knowledge arises within the person, rather than from external sources. According to this view, knowledge is not transmitted by the teacher to the student. Either knowledge already lies within man or is generated by man through his own efforts. Another argument for the discussion method involves the view that, ultimately, gaining knowledge is its own reward. In this way, the student frees himself from others' expectations of him, and he can then set his own goals and standards, and can learn at his own pace.[8]

---

[7]E. C. Lamberson, Education for Nursing Leadership, Philadelphia, 1958, J. B. Lippencott Company.

[8]Ronald T. Hyman, Ways of Teaching, Philadelphia, 1970, J. B. Lippincott Company, p. 41, 49.

This view is in conflict with the open-door policy at most community colleges. As students come from various educational and ethnic backgrounds and from all age groups, it is imperative that the curriculum and teaching methods be adapted to meet their individual needs.

NURSING RESEARCH

By virtue of her faculty position, the clinical instructor has a unique opportunity to do nursing research. She is free to come and go in the clinical area and is usually privileged to spend as much time there as she desires. She is free of the demands and pressures of nursing service; that is, working in the hospital and being responsible for those who are actually giving direct nursing care. She may take time to observe and become aware of problems nurses seem to be experiencing in their care of patients. She may then generalize and conceptualize these problems and subject them to research. She may also conduct research on teaching methods in the classroom setting to determine if there is a relationship between theory and practice; between theory and state board results; and between state board results and safety in practice. Matheney states that the relationship between the state board examinations and safety in practice

is open to serious question and that the use of state board results to evaluate quality of nursing programs is absolute nonsense.[9]

Since accreditation by the state board is necessary to keep a school in operation, nursing educators must develop health core modules that will prepare students to pass state board examinations while also preparing them to become safe, efficient nurse practitioners. The two year ADN programs are currently producing 46.6 per cent of the state's annual supply of registered nurses. Table 1 shows that the graduates from Associate Degree Nursing programs numbered 1006 in 1973, as compared to 738 graduates from Baccalaureate Degree programs and 412 graduates from the Diploma Nursing programs in Texas alone. Regardless of the type or length of program, it is felt that certification to practice nursing should be granted upon graduation.[10]

---

[9]Ruth Matheney, "Can Nursing Live With Open Admissions?" American Journal of Nursing, 70:2561, 1970.

[10]Ibid.

TABLE I

1973 EXAMINATION INFORMATION

Total Filing	March 1973	July 1973	October 1973	Total
Diploma	2	353	57	412
Associate Degree	40	305	661	1006
Baccalaureate	105	535	98	738
Total	147	1193	816	2156
Registered	101	1026	632	1759

Report From The Board Of Nurse Examiner, the State of Texas, October, 1974.

Table 2 shows similiar percentages for 1972, with 859 graduates from Associate Degree Nursing Programs, 597 graduates from Baccalaureate Degree Nursing Programs, and 348 graduates from Diploma Nursing Programs in Texas. Students from all three types of programs must take and pass the same state board licensure examination. Since the ADN program is two years in length, the Diploma program three years, and the Baccalaureate Degree program four years, the ADN must require more concerted effort on the part of the student than the other types of programs if the same material must be learned in two years;

yet the ADN programs must admit, through the open door, students with less educational background than those admitted to the other types of programs.

TABLE II

FACTS ABOUT SCHOOLS OF NURSING

Program	1966	1968	1969	1970	1971	1972
BACCALAUREATE						
No. Programs	7	9	10	10	11	12
No. Students						
Enrolled	1472	2878	3097	3408	4098	5674
Graduated	340	342	390	453	471	597
ASSOCIATES DEGREE						
No. Programs	5	18	20	20	20	23
No. Students						
Enrolled	306	1313	1665	2126	2668	3275
Graduated	40	86	307	511	608	859
DIPLOMA						
No. Programs	23	19	18	14	10	10
No. Students						
Enrolled	1413	1845	1509	1309	994	1124
Graduated	434	513	500	425	365	348
TOTAL						
No. Programs	35	46	48	44	41	45
No. Students						
Enrolled	3191	6036	6271	6843	7760	10073
Graduated	714	932	1197	1399	1444	1804

Report From The Board Of Nurse Examiners, the State of Texas, Vol. IV, No. 1, April, 1973.

EDUCATIONAL BACKGROUNDS

Edmund J. Gleazer, Jr., commenting on the insufficient educational background of some community college students, stated that among the students there will probably be some who have experienced denial of achievement in the past, possibly because of faulty or inadequate educational services.[11]

In view of the increasing number of Associate Degree graduates, the question is often asked, "How do these two-year graduates perform on state board examinations?" A better question would be, "How do ADN graduates function on the job?" Forest's study of ADN graduates in selected New York City hospitals showed that 90 per cent of the graduates who were in staff nurse positions reported that their major function was to give general nursing care, and this was corroborated by nursing service directors. This finding leads to the conclusion that the objectives of the Associate Degree Nursing program are being met.[12]

A study by Lande reports licensure results for the three types of nursing program graduates for the years 1959-1965. At that time the percentages of successful

---

[11] Edmund J. Gleazer, Jr., This Is The Community College, Boston, 1968, Houghton Mifflin Company, p. 57.

[12] Betty L. Forest, "The Utilization of Associate Degree Graduates in General Hospitals", League Exchange, No. 82, National League for Nursing, New York, 1967.

candidates on their first attempt in all three types of programs dropped. The baccalaureate candidates dropped from 97 percent successfully passing to 92 percent; diploma candidates dropped from 87 percent to 86 percent; associate degree candidates dropped from 90 percent to 78 percent. Decrease in success of associates degree candidates was most marked. However, on the second attempt at examination, associate degree graduates brought the passing score up to 96 percent successful.[13]

DYNAMICS INVOLVED IN THE ADVANCEMENT OF KNOWLEDGE

The percentage of failures of Alvin Junior College candidates for licensure on their first attempt is slightly below that quoted by Lande. Although there was an increase in the percentage passing on their first attempt this past year, much study and institutional research must be undertaken to determine the methodology necessary to meet the needs. In conducting such research, care must be taken to ensure a critical overview. As Arthur M. Cohen pointed out, by offering divergent perspectives, it is possible to examine the community college as though it were something other than the social panacea the prevailing view holds it to be. The dynamics involved in the advancement

---

[13]Sylvia Lande, "A National Study of Associate Degree Programs: 1967," National League for Nursing, New York, 1969.

of knowledge results from the conflict between common sense and critized knowledge. Common sense "facts" are frequently found to be unreliable.[14]

Some colleges and universities are more oriented toward serving non-traditional students than others. They are systematically more liberal in offering opportunities to adult or part-time students for non-classroom credit. Postsecondary education is relaxing its former rigidities through new experiments in time, place, evaluation, and content of programs. These non-traditional programs range across almost every conceivable topic. Among the accepted on-campus programs are those using individualized or programed methods of instruction. These are designed for atypical students such as housewives, teachers' aides and health paraprofessionals. Over a third of such programs are offered in public two-year colleges.[15]

There are several overriding concerns in community college nursing programs at the present. For one, what is euphemistically called overload or use of part-time faculty

---

[14]Arthur M. Cohen and Associates, A Constant Variable: New Perspectives on the Community College, San Francisco, 1971, Jossey-Bass Inc., A publication of ERIC Clearinghouse For Junior Colleges, pp. x, 23.

[15]K. Patricia Cross, John R. Valley and Associates, Planning Non-Traditional Programs, San Francisco, 1974, Jossey-Bass, Inc., A publication of the Commission on Non-Traditional Study., pp. 66-69.

is common across the country. Overload can simply mean doing two jobs, or doing only one-half of one job twice; either way, students are apt to be cheated. The faculty-student ratio in the clinical area is a particular concern. College administrators continue to insist that nursing is a much too expensive program and push almost constantly for the clinical ratio to be increased, regardless of the ability of the faculty members, type of clinical facilities or curriculum pattern. In some states where open door policy is a common practice, it is not unusual for over 50 percent and sometimes 60 percent of the students to fail on the first State Board sitting.[16]

Alvin Junior College is meeting the required fac ulty-student ratio in the clinical area. Team-teaching and other innovative, non-traditional methods of teaching are being utilized, and while the open door is still maintained for entrance to the college, a student must score 16 or above on the American College Test or obtain nine hours credit in academic courses applicable to the nursing program with a grade point average of 2.5 in order to be admitted to the nursing program. This criteria does not seem high in view of the fact that a student may drop a

---

[16]Gerald J. Griffin, "Some Hazards For Continuing Education at the Community College Level", Pamphlet published by Charles B. Slack, Inc., Medical Publisher, 1974. Dr. Griffin, Ed. D., is Director of the Department of Associate Degree Programs of the National League for Nursing.

a course almost up to the week of finals and no grade will show on his transcript. He may then repeat the course until he has a GPA of 2.5.

V. DEFINITIONS OF TERMS

As used in this research report, the following definitions will apply to terms used.

ACT - American College Test

ANA - American Nurses Association

Attitudes toward learning - the overt and covert manifestations of the affective domain of students toward the learning process.

Clinical Area - hospital

Clinical Evaluations - written appraisals by clinical instructors of students' performances in the hospital.

Domains:

Affective domain - feeling tone or attitude.

Cognitive domain - intellectual or thinking process.

Psychomotor - motor skills.

GPA - grade point average

ICN - International Council of Nurses

Learning process - a continuing development involving many changes, generally a number of steps or operations.

LRC - Learning Resource Center. Contains library, audio-visual aids, multi-media.

NLN - National League for Nursing

Nursing process - a set of intellectual tasks and cognitive actions in a special order which is initiated when the nurse and patient comes together and the nurse recgnizes the need for purposeful interaction toward the resolution of the problem.

Placements - number of spaces available in hospitals for student practice.

Post-conference - a group meeting of students with their instructor for one hour at the end of each hospital day.

Variables:

Dependent Variable - State Board Examination scores.

Independent Variable - team-teaching supplemented with audio-taped lectures as a teaching method.

Moderator Variable - students' ages and educational backgrounds.

Teaching methods:

Team-teaching - Classroom theory taught by a team of nursing instructors with each instructor listening to and participating in the other's presentation. Each instructor then reviews this material with her small group of students in post-conference in the hospital.

Traditional teaching - one-teacher lecture type of instruction.

Types of Nursing Programs:

ADN (Associate Degree in Nursing) - a two-year Junior College Program.

Diploma Program - a three-year hospital based program.

Baccalaureate Degree Nursing Program - a four-year college or university program.

VI. LIMITATIONS

This study was limited to students taking the NLN Examinations for the Spring and Fall semesters of 1973, and the Spring and Summer semesters of 1974. It was also limited to students taking State Board Examinations in July, 1974.

It was further limited to those students from these groups who took Medical-Surgical Nursing I at Alvin Junior College.

The experimental group was limited to those students at Alvin Junior College who took Medical-Surgical Nursing II during the Spring and Summer terms of 1974.

The study was further limited by the fact that, as taught at Alvin Junior College, Medical and Surgical Nursing is integrated into one course, while examinations at the State Board level seperate this into two different examinations.

The diverse backgrounds of these students also limited the study. Some had a history of repeated failures and retakes in academic courses before being admitted to the nursing program, while others had a history of excelling in academics.

VII. BASIC ASSUMPTIONS

The assumption was that the two groups under study

were reasonably homogeneous. The exceptions included only a few students whose educational background and grade point average were below that of the others.

These students have had an equal opportunity for learning since enrolling at Alvin Junior College. Each has had access to multi-media and to conferences with instructors. Each has had opportunity for the same types of learning experiences in the clinical area. Direct, individualized supervision was afforded each student in the hospital setting during the introductory courses. As the student progressed and showed mastery of a procedure, he was given opportunity to work independently and only have the results checked. However, if any student felt the need for supervision or assistance, he was encouraged to seek help from his instructor throughout the program. In this way, each student had learning opportunities equal to that of any other student.

VIII. PROCEDURES FOR COLLECTING DATA

Data for this research was collected from NLN standardized test scores on Medical-Surgical Nursing taken during the Spring and Fall semesters of 1973 for the control group, and the Spring and Summer semesters of 1974 for the experimental group. Scores on the State Board Licensure Examination was collected from the July,

1974 examination when both groups participated.

IX. PROCEDURES FOR TREATING DATA

Scores taken from the NLN Examinations were subjected to a t-test to ascertain if those from the experimental group were higher at the .05 level of significance. The experimental group consisted of those students who were taught by the team-teaching method supplemented with audio-taped lectures. The control group consisted of those students taught by the traditional one-teacher lecture method.

The scores on the State Board examination were compared to the scores of those taught by the traditional method. The percentage from each group passing medical and surgical nursing was subjected to statistical analysis using the z-test as a measurement.

Percentages were used on the State Board examinations rather than a comparison of means because it is on this basis that each school of nursing is evaluated for annual accreditation. Each student must take five examinations, and while failures are calculated for each examination, the failure of only one examination means that the student has failed her State Boards and cannot be registered to practice nursing. The total percentage of students failing includes those that failed only one examination as well as those that failed four or five. While

this was not relevant to the outcome of the hypotheses being tested on Medical-Surgical Nursing alone, it does affect the overall picture; therefore, a histogram was used to show this.

The dependent variable was the State Board examination scores. The independent variable was the team-teaching method supplemented with audio-taped lectures. A moderator variable was the students' ages and educational backgrounds. Another moderator variable was the difference in the way content was grouped in classes at Alvin Junior College and the way State Board examinations are divided. Medical-Surgical Nursing is grouped together as course one and course two at the college, but the State Board examination has two tests: one on Medical nursing and one on Surgical nursing.

Another moderator variable was the way students in the experimental group were taught in Medical-Surgical Nursing I. They were taught by the traditional one-teacher lecture method in the first course and by the team-teaching approach in the second course. Over half of these students received failing grades in the first course. This was later changed to a passing grade, but this meant that these students went into Medical-Surgical Nursing II with a deficiency in their background knowledge.

Inasmuch as a t-test and a z-test were used in this

study, the requirements for parametric techniques were met. Scores were arranged on a normal curve. Standard deviations of the two groups under study were prepared for homogeniety of variance, and the dependent variable was described by data expressed in terms on an interval scale.

X. DATA RESULTING FROM THE STUDY

The data obtained in response to hypothesis number one showed that the mean test scores on the National League for Nursing tests for Medical-Surgical Nursing II were significantly higher in the experimental group than in the control group when using a t-test at the .05 level of significance. The critical value of t was 1.64 for the directional test and the calculated value of t was 1.95. The means, standard deviations, and numbers of both the experimental group and the control group can be seen in Table 3.

TABLE III

MEANS, STANDARD DEVIATIONS, NUMBERS, df, AND THE DIFFERENCE BETWEEN THE MEAN AND THE CALCULATED t

	YEAR	$\overline{X}$	s	N
EXPERIMENTAL	(1974)	77	15.1	104
CONTROL	(1973)	73	17.3	118

$\overline{X}_1 - \overline{X}_2 = 4$

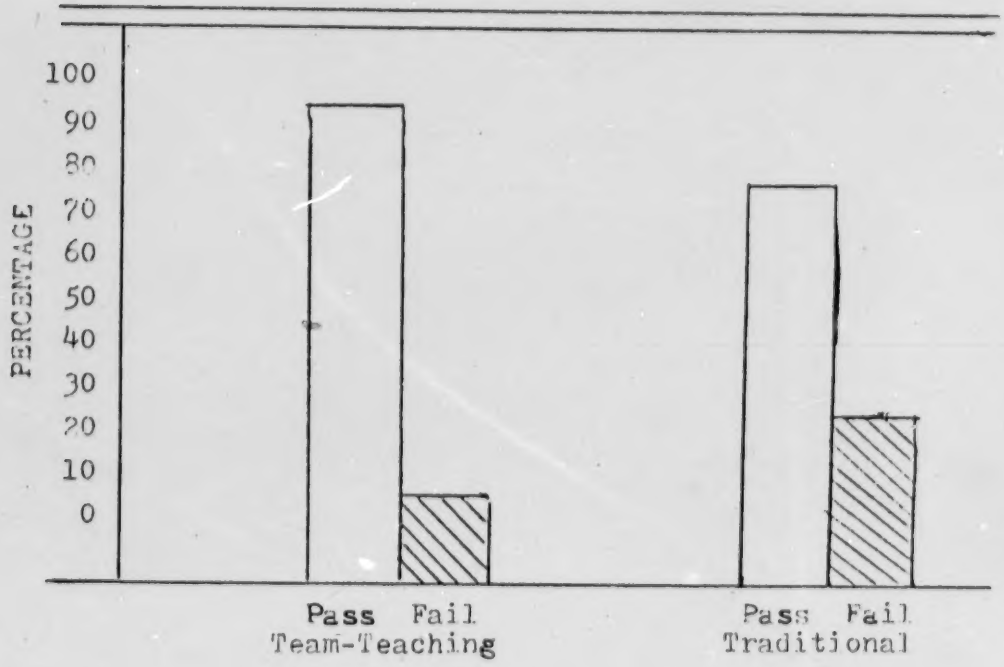
df = 220

t = 1.95

A secondary analysis was made using scores from the State Board examination. Data resulting from hypothesis number two show percentages between the two groups. A z-test at the .05 level of confidence was used for a directional test. This showed that the proportion of students passing State Board examinations from the experimental group taught by the team-teaching method was significantly higher than those in the control group taught by the traditional one-teacher lecture method. The critical z-value for a one-tailed test was 1.645 and the calculated z-value was 1.976. Raw data for this is shown in Appendix A. Table 4 shows a histogram of the percentage of students passing the examination from each group. Those passing the examination from the experimental group numbered 94 percent while there were only 77 percent successfully passing in the control group.

TABLE IV

THE PERCENTAGE OF STUDENTS PASSING OR FAILING STATE BOARD EXAMINATIONS FROM THE EXPERIMENTAL AND THE CONTROL GROUP



XI. SIGNIFICANCE OF DATA

The data show that requirements for a parametric test were met. The scores were arranged on a normal curve and standard deviation show homogeniety of variance. The dependent variable was the scores on the State Board Examination, which were express in terms of an interval scale. The independent variable was the team-teaching method.

The percentage of students passing State Board Examinations is of more importance to Alvin Junior College than the mean scores. A few extreme scores could cause the school's mean to be above the passing score for students, yet several students could still fail and accreditation of the school is determined by the number of failures.

XII. CONCLUSIONS AND SIGNIFICANCE

The success of the team-teaching approach can be seen by graphic comparison of State Board results of these students with those taught by the one-teacher lecture method; by statistical analysis of these State Board results; and by a comparison of the mean test scores on standardized NLN tests.

The significance of this study for Alvin Junior College is that it will help in determining methods of

teaching nursing students in the future. Since the percentage of students passing State Board Examinations is germane to maintaining annual accreditation, teaching methodology must be continually evaluated. Nursing students also fill many classes in English, psychology, and the science courses which provide job opportunities for teachers of these subjects. The college also profits by keeping the nursing program open because State funds are allocated for vocational/technical programs. Nursing is the largest department on campus; therefore, loss of accreditation, and subsequently, loss of the program would greatly decrease enrollment in the college. Team-teaching need not be limited to nursing courses. The results of this research could be studied and the team-teaching method utilized by other departments and in other colleges.

RESIDUAL FINDINGS

While not relating to the purpose of this study, but nonetheless, resulting from it, a questionnaire was sent to all the graduates who had been in the experimental group. Of those answering the questionnaire, 83 percent stated that they preferred the team-teaching approach. Audio-tapes to supplement team-teaching were placed in the LRC for optional use by the students. Only 16 percent stated that they did not listen to the tapes, but of those that did listen, 100 percent stated that the tapes were

beneficial to their learning.

Another finding resulting from this study was that students from both groups scored lower on the medical portion of the State Board Examination than on the surgical portion. A z-test conducted on the medical portion of the examination at the .05 level of confidence was not significantly higher in the experimental group, so the null hypothesis had to be accepted and a Type I error was committed. The test was not done as part of this study, but it pointed out an area of nursing that needs improvement.

XIII. FURTHER STUDIES AND RECOMMENDATIONS

As was stated in the limitations, Medical-Surgical nursing is taught together as one class but is two semesters in length at Alvin Junior College. However, a seperate examination is given for medical nursing and for surgical nursing on the State Board Examination. This was also listed as a moderator variable in the study as no control could be made on this at that time. Medical nursing had been weighted heavily in the first part of Medical-Surgical nursing with more surgical nursing being placed in the second half.

As a result of the findings of this study thefollowing

recommendations are suggested for consideration:

1. Recommendation is made to take necessary action to include more medical nursing in the curriculum.

2. Recommendation is made that faculty members be tested to determine their expertise in medical nursing.

3. Recommendation is made to conduct further study on teaching [illegible]ology of medical nursing.

4. Recom[illegible]on is made that team-teaching be continued for the next semester and that results of State Board Examinations at that time be followed up by statistical analysis of the data.

Across the country, from national nursing organizations to state boards of nurse examiners and to schools of nursing, it is being stressed that nursing educators should place less emphasis on the disease entity and place more emphasis on the nursing process. For this reason plus the low grades of Alvin Junior College students on the medical portion of nursing, further study on content being taught is recommended.

BIBLIOGRAPHY

Aasterud, Margaret and Kathryn Guthrie. "What Can Be Expected of the Graduate with an A.D.?" Nursing Outlook, 12:52-54, August, 1964

Allen Virginia. Community College Nursing Education. New York: John Wiley and Son, Inc., 1971.

Alvin Junior College Anedotal Records.

Bloom, Benjamin, (ed.). Taxonomy of Educational Objectives, Handbook I, Cognitive Domain, New York: Longmans, Green and Company, 1956.

Bridgman, M. Collegiate Education For Nursing. New York: Russell Sage Foundations, 1953.

Cohen, Arthur M. and Associates. A Constant Variable: New Perspectives On The Community College. San Francisco: A publication of the ERIC Clearinghouse for Junior Colleges.

Cross, Patricia, John R. Valley Associates. Planning Non-Traditional Programs. San Francisco: Jossey-Bass, Inc., 1974. A publication of the Commission on Non-Traditional Study.

Forest, Betty L. "The Utilization of Associate Degree Graduates in General Hospitals," League Exchange, No. 82, National League for Nursing, New York: 1967.

Gleazer, Edmund Jr. This Is The Community College, Boston: Houghton Mifflin Company, 1968.

Griffin, Gerald J. "Some Hazards For Continuing Education at the Community College Level," Pamphlet published by Charles B. Slack, Inc., Medical Publishers, 1974.

Hyman, Ronald T. Ways of Teaching. Philadelphia: J. B. Lippincott Company, 1970.

Kramer, M. "Does The Teacher Really Know Best?" Journal of Nursing Education, 6:3-11, January, 1967.

Lamberson, E. C. Education For Nursing Leadership. Philadelphia: J. B. Lippincott Company, 1958.

Lande, Sylvia. "A National Study of Associate Degree Programs: 1967." New York: National League for Nursing, 1969.

Matheney, Ruth. "Can Nursing Live With Open Admission?" American Journal of Nursing. 70:2561, 1970.

Matheney, Ruth. "Pre-and Post-Conference for Students," American Journal of Nursing. 69:286-289, February, 1969.

Montag, Mildred. Community College Education for Nursing, New York: McGraw-Hill Book Company, Inc., 1969.

Schweer, Jean E. Creative Teaching In Clinical Nursing, Second Edition, Saint Louis. C. V. Mosby Company, 1972.

Wiedenback, Ernestine. Meeting the Realities in Clinical Teaching, New York: Springer Publishing Company, Inc., 1969.

-----"The World of Nursing Meets in Montreal," American Journal of Nursing, A Journal report on the Fourteenth Quadrennial Congress of the International Council of Nurses, 69:1684-1699, August, 1969.

Zeitz, Ann N. et al. Associate Degree Nursing, Saint Louis: The C. V. Mosby Company, 1969.

APPENDICES

APPENDIX A

RAW DATA CONCERNING THE STATE BOARD EXAMINATION

	N	Passing	Failing
Experimental Group	37	35	2
Control Group	26	20	6

$H_o: P_1 = P_2$

$H_a: P_1 > P_2$

$\alpha = .05$

$P_1 = \frac{35}{37} = .94$ $\qquad P_2 = \frac{20}{26} = .77$

$\bar{p} = \frac{35 + 20}{37 + 26} = \frac{55}{63} = .87$ $\qquad \bar{q} = 1 - \bar{p} = 1 - .87 = .13$

$n_1 = 37$ $\qquad n_2 = 26$

$$z = \frac{P_1 - P_2}{\sqrt{\frac{\bar{p}\bar{q}}{n_1} + \frac{\bar{p}\bar{q}}{n_2}}}$$

$$= \frac{.94 - .77}{\sqrt{\frac{(.87)(.13)}{37} + \frac{(.87)(.13)}{26}}}$$

$$= \frac{.17}{\sqrt{\frac{.1131}{37} + \frac{.1131}{26}}} = \frac{.17}{\sqrt{.0074}}$$

$= \frac{.17}{.086}$ $\qquad z = 1.976$ $\qquad$ crit $z = 1.645$, obt $z = 1.976$

Reject H_o and accept H_a

APPENDIX B

QUESTIONNAIRE ON TEAM TEACHING
SUPPLEMENTED BY AUDIO-TAPES

The following questions pertain to a teaching method, not to a particular teacher. Feedback from you will provide input that will be helpful in planning future classes and upgrading our nursing program.

Please answer as honestly as you can concerning your feelings and opinions of the Team Teaching approach supplemental with Audio-taped lectures in the LRC as used in your Medical-Surgical Nursing II classes.

1.	Was team teaching more beneficial to you than the one-teacher method?	Yes	Somewhat	No
2.	Were your clinical instructors more informed by participating in classroom theory?	Yes	Somewhat	No
3.	Was it beneficial to you in the clinical area to have your instructor's participate in classroom theory?	Yes	Somewhat	No
4.	Was there agreement as to theory between the instructors?	Yes	Somewhat	No
5.	Did having your clinical instructors participate in classroom instruction help you in finding answers to questions pertaining to theory?	Yes	Somewhat	No
6.	Did you listen to the audio-tapes of lectures provided in the LRC?	Yes	Somewhat	No
7.	Did the audio-tapes reinforce the instruction presented in the classroom?	Yes	Somewhat	No
8.	Were the tapes well organized?	Yes	Somewhat	No
9.	Were the audio-tapes beneficial to your learning?	Yes	Somewhat	No
10.	Was the material presented on the tapes consistent with test questions?	Yes	Somewhat	No
11.	Was the material presented in the classroom by the team of instructors consistent with that in the textbook?	Yes	Somewhat	No
12.	Was the material presented in the audio-tapes consistent with that of the textbook?	Yes	Somewhat	No
13.	Were the audio-tapes helpful in preparing for State Board Examination?	Yes	Somewhat	No

14.	Were the audio-visuals such as film strips beneficial to your learning?	Yes	Somewhat	No
15.	Did the field trips to various health agencies give you a good background in facilities available in the area?	Yes	Somewhat	No
16.	Did you enjoy making the field trip?	Yes	Somewhat	No
17.	Did you profit by presenting your findings on the field trip to your classmates?	Yes	Somewhat	No
18.	Did you profit by hearing your classmates presentation of their trips?	Yes	Somewhat	No
19.	Were group presentations of lecture material helpful to you?	Yes	Somewhat	No
20.	Did presenting part of the material yourself help you in any way?	Yes	Somewhat	No
21.	Did you feel responsible for your own learning in this course?	Yes	Somewhat	No
22.	Was the selection of theory content on the audio-tapes relevant to knowledge needed for clinical performance?	Yes	Somewhat	No
23.	Were most questions on tests based on material found in your text book?	Yes	Somewhat	No
24.	Did test questions reflect the thinking of more than one teacher?	Yes	Somewhat	No
25.	Were your test grades altered in a positive way by the teaching method?	Yes	Somewhat	No
26.	Were test questions taken from all three sources; text-book, audio-tapes and classroom instruction?	Yes	Somewhat	No
27.	Were your teachers interested in your learning?	Yes	Somewhat	No
28.	Were the objectives written specific enough for you to do independent study?	Yes	Somewhat	No
29.	Was the course interesting to you?	Yes	Somewhat	No
30.	Did the small test/retests help you in preparing for the unit examinations?	Yes	Somewhat	No

31.	Was the course well organized?	Yes	Somewhat	No
32.	Was the course well executed?	Yes	Somewhat	No
33.	If you were to take a similar course, would you prefer the team-teaching approach?	Yes	Somewhat	No
34.	Would you like to have audio-tapes to supplement classroom instruction?	Yes	Somewhat	No
35.	Would you prefer the one-teacher method of teaching?	Yes	Somewhat	No

In order to evaluate this survey, it is important to know a few things about the respondents. Please help by answering these questions.

36. What is your sex?

Male
Female

37. What is your ethnic background?

Black
Caucasian
Mexican-American
Oriental
Other (specify)

38. What is your age?

Under 20
20 - 29
30 - 39
40 - 49
over 49

39. What is your marital status?

Single
Married
Separated
Divorced
Widowed

UNIVERSITY OF CALIF.
LOS ANGELES
OCT 31 1975
CLEARINGHOUSE FOR
JUNIOR COLLEGES